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**APPLICATION FOR UNITED STATES
LETTERS PATENT**

RECORDING GAME INFORMATION INTO A SERVER

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BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a server for managing a database for storing statistics for players and teams of various types of sports.

2. Description of the Related Art

There are many prior art references which include memory for keeping statistics on the players of sports such, for example, as U.S. Patent No. 5,412,188 which discloses a sports statistic recording system for basketball. In accordance with that patent, charts containing barcodes are read by a scanning device connected to a personal computer. Records are made during the game for each event that occurs during the game. An operator scans the bar code associated with the player, the event type, and the time the event occurred during the game.

U.S. Patent No. 5,795,237 discloses a portable electronic golf score display device. This device includes a ROM memory for executing the program and a RAM memory for the course information and the score information. The information recorded on the portable device may be downloaded to a computer for adding up and displaying of data.

U.S. Patent No. 5,878,369 discloses a golf course yardage and information system. This system includes a mobile unit subsystem which can be mounted on a golf cart or held by a golfer which includes Differential Global Positioning Satellite (DGPS) technology so that its position on the golf course can be determined. Furthermore, the individual strikes of

each golfer can be recorded and transmitted to a central course management station. The information of each mobile station is compiled at the course management station and used to determine bottlenecks on the course and other statistical information.

U.S. Patent No. 5,319,548 discloses an interactive golf game information system that receives, stores, analyzes and outputs a plurality of different types of information. The system generates a golf play recording card on which a player records a single character for each stroke. Each character represents a club and a location. After finishing a hole, the card is inserted into a reader which analyzes and stores the information. The system can then analyze performance based on the recorded information.

U.S. Patent No. 5,779,566 discloses a hand-held golf reporting and statistical analysis apparatus. Prior to game play, the device provide information to allow the player to make informed performance-affecting positions such as the best time of day to play, the best golf ball compression to use, or the most ideal ground conditions, for example. During game play, the device provides means to record the player performance and to assist a player in selecting the most appropriate golf club for each shot, considering the player's club skill and the effect of extrinsic factors. After game play, the device provides a comprehensive set of historical data on performance, including the effects of extrinsic data on performance.

U.S. Patent No. 5,772,534 discloses a satellite enhanced golf information system. This system uses a golf cart fitted with a differential global positioning satellite (DGPS) system to determine how far a golfer is from a pin based on a position of the golf cart

and also to indicate to a base system of the golf course the progression of each particular golf course along the course.

U.S. Patent No. 5,681,108 discloses a golf scorekeeping system including a portable handheld data processing system that stores and retrieves golf information using a voice recognition system.

PCT Publication No. WO 98/44998 discloses a golf records keeping system. The system includes a central processing unit (CPU), a card reader and a printer. The card reader receives player identification and sends it to the CPU. The CPU processes the data and prints a personalized score card for the player. During play, the player marks the scorecard by indicating the number of strokes taken for each hole. After play is completed, the player sends his completed scorecard through the reader and verifies that the information read by the reader is correct. After verification, the data is sent to a central database and the new information is added to previously accumulated information for that player to re-handicap the player if required.

Japanese Patent Publication No. 07-141401 discloses a method of gathering measurement data in a database server by plural measuring devices. A database server stores and manages the measurement data outputted from the plural measuring devices.

SUMMARY OF THE INVENTION

It is an object of the invention to provide a server that records game information received from many different types of input devices into a database and presents the stored information to viewers via many different types of output devices.

5 It is a further object of the invention to provide a server that records game information and performs further operations on the recorded information to describe calculated and/or personalized results.

A sports server according to the present invention includes a server including at least one sport database for recording statistics for one or more sports. According to the present invention, a game result is generated by playing a game such as, for example, golf, ice hockey, football, baseball, and bowling. The game results are input into a mobile terminal input device and then transmitted via the mobile terminal to a central location, i.e., the sport server. The game results may be input by the player himself or may be automatically added to the game server based on results received from a detecting system such as, for example, an automatic scoring device in a bowling alley which detects pins left standing and after each turn and records the result. Alternatively, the game results may be input by a person assigned to input the results of a specific sporting event. The mobile terminal transmits the result to the sport server including the location of the mobile terminal. The server then determines the database field in which to input the information based on the user input and optionally on the location information and records the information in that database field. The recorded information may then be presented to any user with access to the database.

As a specific example, a golf player may play a hole and input his score, i.e., the number of strokes, into the mobile terminal. The sport server recognizes the type of mobile terminal being used and prompts the mobile terminal for the game score information using a display that is appropriate for the type of mobile terminal being used to input the information. The mobile terminal then transmits the information via a mobile communications network to the sport server including the location from which the mobile terminal is sending the information. The location information is determined by a communication system, a GPS system, or a base station to which the mobile terminal communicates. Based on the location information, the sport server determines which golf course the player is playing and saves the information appropriately in the database associated with that golf course. The player may send all his information at once in the first contact to the server, e.g., name, golf course, etc., which does not need to be sent sequentially. The result for each hole may be sent after each hole is played. The user may be identified by, for example, his subscriber ID. Accordingly, after the first connection to the server, the user is identifiable by his subscriber ID and does not need to re-enter such information each time the user enters the score for a hole. In addition to the score for each hole, the information that can be inputted may further include information about long drives, chips, putting, and sand drives. The information may then be analyzed by the sport server to determine the player's strengths and weaknesses. The sport server may also determine how well all players perform on a certain course. The player can access his own previous results and scores and compare his current status to these earlier achievements. Furthermore, the results of a tournament on a golf course may be accessed by querying the

database for all games played on the day of the tournament and on the course on which the tournament was held.

Various types of input devices may be used to input the information to the server. Likewise, the information in the database may be accessed by various different types of output devices.

The various features of novelty which characterize the invention are pointed out with particularity in the claims annexed to and forming a part of the disclosure. For a better understanding of the invention, its operating advantages, and specific objects attained by its use, reference should be had to the drawing and descriptive matter in which there are illustrated and described preferred embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, wherein like reference characters denote similar elements throughout the several views:

Fig. 1 is a flow diagram showing the steps required for entering data to the sport server;

Fig. 2 is a block diagram showing the sport server and database and various input devices and output devices used to record and view the game information;

Fig. 3 is a schematic diagram showing the transmission of an input signal to the sport server and the transmission of an output signal from the sport server to an output device; and

Figs. 4a and 4b respectively show the display of an input device with a first prompt for selecting a specific sport and a second prompt showing a sport specific input screen for inputting information pertaining to the selected sport.

DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EMBODIMENTS

Fig. 1 shows a sport server 10 with a sport database 12 according to an embodiment of the present invention. The sport server 10 is a server including a computer for managing sport data to be saved in the sport database 12 and for managing queries of the sport database by users having access to the sport data. The sport server 10 may comprise various types of software for communicating with various types of input and output devices and may, for example, comprise a world wide web server for communicating via the internet and the world wide web, a Wireless Application Protocol (WAP) for communicating with WAP capable terminals, and sport specific software for communicating with sport specific devices designed specifically for inputting game results of a specific sport. The results of a sporting event, such as a game, competition, or tournament are input to the sport database 12 by a user using an input device, i.e., a mobile terminal. After being input, the results are viewable on output devices. Accordingly, there are two different types of users of the sport server 10. The first type of users are data entrants who input the results of a sporting event into the sport database 12. The second type of users are viewers who view the data in the sport database 12 using output devices.

The sport server 10 is designed to receive input from various types of input devices such, for example, as a Personal Digital Assistant (PDA) 14, a WAP capable communicator 16, and a sport specific device 18. The WAP capable communicator 16 typically comprises a handheld wireless device such as a mobile phone, a pager, a two-way radio, or a smart-phone.

The output device may comprise a www-browser 20, an electric scoreboard 22, a news wire 24, a television 26, or a PDA/ SmartPhone/ cell phone 28. The data transmitted to the output device may be the raw data input by the input device or the sport server may compile a report from the history of data stored in the sport database 12. For example, the sport server may analyze data for a particular player to determine strengths and weaknesses of the player.

The general procedure according to the invention is depicted in Fig. 2. A game result is generated by players of a sporting event such as a round of golf, step 100. To input the sport data, i.e., the game result in a sport database, a mobile terminal is connected to a sport server, step 104. The sport server then determines the type of mobile terminal being used and prompts the mobile terminal for the sport data using a prompt display that is appropriate for the mobile terminal type, step 106. For example, the display of a conventional mobile telephone can display a certain number of characters of a specific size and is not in color. Therefore, the prompt display to the mobile phone will conform to the parameters of the display of that phone. Alternatively, the input device may also comprise a PDA having a larger display which may be in color. In this case, the output of the server is formatted for the larger display and is in color. Accordingly, the prompt display and the communication protocol must conform to the particular input device and output device. Once the prompt display is transmitted, the sport data are then input into a mobile terminal by a user, step 110. The mobile terminal then transmits the sport data to the sport server including location information for the mobile terminal, step 120. The sport server then selects the appropriate

field in the sport database based on the sport data received from the mobile terminal, step 130. In an optional embodiment, the location information is used by the sports server to help determine the appropriate field in the sport database. The information is then recorded in the appropriate database, step 140, and the sport data may then be accessed by those having proper authority to do so, step 150.

Fig. 3 depicts a mobile phone 200 being used as an input device. The mobile phone 200 is connected to the sport server 10 via a base station 202 connected to a network 204 which is connected to the sport server 10. As shown in Fig. 3, two sport databases 12a, 12b may be connected with the sport server 10, each storing sport data for a different sport and/or a different region. During establishment of the connection, the sport server 10 determines the type of mobile terminal being used and the parameters required for communication with that mobile terminal, i.e., step 106 in Fig. 2. The connection database includes the type of device, the horizontal and vertical resolution of the display on the device, the colors of the display, the operating system used by the display, the operating system of the device (i.e., Nokia Communicator 9110, Palm V, Windows CE), the connection speed, the processor power, the amount of memory, and a key for accessing the sport database. Furthermore, the sport server may require validation of the user before sport data can be input to or retrieved from the sport database 12. The validation may require a password, or may validate the user by phone number or device ID. Accordingly, the sport server must include a connection database 32 including input device information and a user database 30 including information for all valid users.

Once the connection is established and the user is validated, the sport server 10 prompts the user for sport data via the display 201. For example, Fig. 4a shows a first prompt on display 201 which lists various sports and requests that the user choose the sport for which data is to be input or retrieved. If, for example, golf is selected, a second prompt will appear on the display 201 as shown in Fig. 4b and may prompt the user for golf specific data such as course name, hole, score, player ID, and player handicap. For team sports, such as baseball, the display may prompt the user for which teams are playing, the score, the stadium, and the inning or period of the latest update.

The sport database 12 preferably comprises data written using eXtensible Markup Language (XML), which is a pared down version of the Standard Generalized Markup Language (SGML). However, SGML may also be used. The sport server 10 includes software supporting a www-server, WAP-server and Sport Server.

Once the sport data is saved in the sport database 12 (or databases 12a, 12b), the sport data may be transmitted to one or more output devices. The output devices may comprise continuously connected devices that automatically display the most current information. Such output devices may comprise an electric scoreboard 22, a news wire 24, or a television 26. In these type of output devices, the sport server 10 may transmit scores for all games being played or that have been played on a present day. Alternatively, the output device may transmit only those scores for a particular sport or may transmit only the scores as they are updated. Alternatively, the output device may comprise a selectively connectable device such as a www-browser 20 or a PDA/ SmartPhone/ cell phone 28. Furthermore, a

viewer may input commands for compiling historic data and generating reports such, for example, as for determining strengths and weaknesses of a golf player or statistics regarding records of a baseball team. A filter adapting device 11 is connected between the output devices and the sport server for adapting the sport data to the desired format for each individual output device. That is, the sport data transmitted to the user is appropriate for the type of output terminal used. Accordingly, only the portion of the output data that is required by a user or that is permitted to be sent to a user passes through the filters. For example, if a player is at home using a PC with a screen, the game server will send audio and video information to the user. However, if the user is using a PDA, or some other communicator without a screen or speakers, the game server may send only SMS data indicating the results of game play in text messages.

Thus, while there have been shown and described and pointed out fundamental novel features of the invention as applied to preferred embodiments thereof, it will be understood that various omissions and substitutions and changes in the form and details of the devices illustrated, and in their operation, may be made by those skilled in the art without departing from the spirit of the invention. For example, it is expressly intended that all combinations of those elements and/or method steps which perform substantially the same function in substantially the same way to achieve the same results are within the scope of the invention. Substitutions of elements from one described embodiment to another are also fully intended and contemplated. It is also to be understood that the drawings are not necessarily drawn to scale. It is the intention, therefore, to be limited only as indicated by the scope of the claims appended hereto.